ON ABDOMINAL ABSCESS:

A CLINICAL LECTURE

DELIVERED IN THE ROYAL INFIRMARY, EDINBURGH,

BY

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Gentlemen,—We have lately had in my wards some good illustrations of a group of diseases not very often met with, but which now and then occur in the practice of a physician, and with which it is essential that you should be acquainted. I refer to cases of abdominal abscess. You will remember that on making our visit ten days ago, we found in Ward VIII. a woman who had just been admitted, complaining of abdominal pain. She was evidently very seriously ill, and we proceeded at once to investigate her case. Let me remind you of the facts we elicited. She was forty-seven years of age; was a mill worker; had always been healthy till towards the end of April, when after violent exertion she was seized with a shivering, and pain in the left side, in the region of the kidney. She managed to work on for about five days, and then had to give in and take to bed; when there she discovered a fulness at the painful part between the ilium and the ribs on the left side. She remarked that it was very tender to the touch. It gradually increased in size. There was no history of renal calculus. The face was flushed; the skin hot; the thermometer registered, after only five minutes in the axilla, 102°; the pulse was rapid and not strong. There was no lesion to be discovered, excepting a large slightly nodulated mass, situated in the left side of the abdomen, and extending from the crest of the ilium to the ribs, being continuous with the kidney at the back, and reaching in front nearly to the umbilicus. The mass was quite distinct from the spleen and the liver. It was tolerably firm, but at the central and most prominent part there was deep fluctuation. The urine was acid; deposited urates on cooling; and contained neither albumen nor tube-casts. The patient had suffered a good deal from constipation, but action had been readily obtained by laxative medicines. With these facts before us I was pleased to find that some of you at once diagnosed perinephric abscess; and as I judged that the case required immediate attention, I asked Mr Annandale to give us the benefit of his advice and assistance. You remember that a moderately fine needle, connected with an aspirator, was introduced through the anterior abdominal wall into the most prominent part of the mass, and that immediately on the valves being opened, pus escaped freely. The pus was singularly

fœtid; and on this account, as well as for other reasons, we resolved at once to proceed to evacuate it entirely. Accordingly, the patient having been brought under the influence of chloroform, Mr Annandale made an incision with the usual antiseptic precautions, not at the front, where the needle had been introduced, but at the side, in the situation and direction of that employed for exposing the external iliac artery. After a little dissection behind the peritoneum, he opened into the cavity of the abscess, and felt the surface of the kidney apparently healthy. Four or five ounces of pus having been drawn off, a drainage-tube was introduced, and the antiseptic dressing applied. On the evening of that day the temperature was 102°, the pulse 92; the pain was easier, the discharge still continued, and the general condition of the patient was much improved.

The fœtor was such as to suggest the existence of a communication with the bowel, but there was no fæcal matter mingled with the pus, and experience has abundantly proved that when abscesses exist in the neighbourhood of the large intestine, a fæcal odour may be present although there is no communication. By an unfortunate mistake the pus was thrown away without having been examined microscopically, so that we do not know whether organisms were present in that which was at first drawn off, but Dr Ronaldson satisfied himself that no organisms were present in the discharges a day or two later.

The grounds of the diagnosis of perinephric abscess were—the presence of a tumour so intimately connected with the renal region; the rapid development of the tumour; the pain and tenderness; the fluctuation in its most prominent part; the high temperature and rapid pulse. In all these respects the case contrasted strikingly with two other examples of abdominal swelling which you have lately had the opportunity of studying. One of them was an example of a tumour, probably malignant, connected with the mesenteric glands. In that case, you remember, there was a history of slow growth, and we felt numerous rounded masses of hard, or at least firm, consistence, certainly nowhere fluctuating. There were no pain as the patient lay at rest, and little tenderness on pressure; the temperature was not elevated, and the pulse was quiet; there was, moreover, extreme anæmia.

The other case is still under observation—that of a young man in Ward VII., who has a tumour in the left side of his abdomen, apparently connected with the kidney and spleen. You remember how firm it is, how free from pain and tenderness, and how insidious has been its growth. Although this case is in itself obscure, you at once observe how different it is from that under consideration.

Many of you also watched with interest the case of a girl who, during the last winter session, was under treatment in Ward VIII. on account of abdominal abscess. She is now quite well; but I wish to recall to you the main features of her case. She was twenty-three years of age, unmarried; and she told us that she had been a feeble child up to the age of seven, but that she afterwards had become quite strong. We further ascertained that when about twenty-one she had had a child, and had been affected with syphilis. She was confined in the Maternity Hospital, and her recovery was so slow that she remained there six weeks. On leaving hospital she complained of pain in the right side, where the swelling afterwards appeared. Although this pain was nearly constant, and interfered with comfort in walking, it did not cause her to take to bed. About the month of May last year she was obliged to remain in bed, the pain having extended and become more intense, while gradually a fulness and hardness had appeared. These increased at first very slowly, but after the beginning of October with considerable rapidity. On admission, she was a pale, delicate-looking girl, somewhat emaciated, with a pink flush on each cheek. Her temperature was 101·4°, her tongue furred, her gums were painful and red, appetite was poor, thirst considerable, digestion impaired, the bowels were constipated. The liver was of natural size. The abdomen was prominent, particularly on the right side; it was tender to the touch, especially at the swollen part. A tumour extended from the level of the crest of the right ilium to a point midway between the umbilicus and the ensiform cartilage, and to a short distance to the left of the umbilicus. The mass was slightly nodulated, and was hard throughout most of its extent, but in the central part, where it was most prominent, careful palpation revealed deep-seated fluctuation. On placing the hand on the right lumbar region, and tilting forwards in the direction of the kidney, the tumour was not lifted up, and there was no marked tenderness. The urinary and all the other systems presented no important abnormality. No pelvic tumour could be found on examination by the rectum or the vagina. The uterus was not fixed. The bowels were readily moved by aperient medicine. Regarding the case as one requiring surgical interference, I asked Mr Annandale to see the patient. We directed the house-physician to explore with an aspirator. Pus being found, Mr Annandale proceeded on October 15 to operate as you saw him do in the recent case. The incision was made parallel with, and internal to, the crest of the ilium. Ten ounces of pus, with several solid lumps, were evacuated. A drainage-tube was introduced, and antiseptic dressing carefully applied. During the week following the operation the fever continued, but it gradually subsided,

the discharge diminished, and the girl in a month was quite out of danger.

The diagnosis which we established was abscess originating either in the retro-peritoneal cellular tissue or in the peritoneal cavity. The grounds of this diagnosis were—the presence of a tumour; the fact that it was enlarging; that while the mass of it was hard, palpation revealed at one point deep-seated fluctuation; that it was not a tumour of the liver, kidney, ovary, or uterus; and that it did not present the characters of enlarged mesenteric glands; the general hectic condition,—the quick pulse, high temperature, dryness of skin, pallor of face generally, with flush on cheeks. The withdrawal of pus by aspiration demonstrated the correctness of our view.

But abdominal abscesses may originate from a variety of causes, and although it is much more important to determine that pus is present than to ascertain the cause of its presence, we should not rest satisfied without discovering its origin. Let us first, then, review the principal causes, and then decide as to that to which the inflammation is to be referred in the cases under consideration.

1. They occur in connection with typhoid ulceration of the intestine. Of this I remember a well-marked example under the care of Professor Schönlein, in the Charité Hospital of Berlin, in which a tumour, similar to that in our case, was formed, and was ultimately recovered from, the pus having been discharged spontaneously by the intestine. The abscess was probably in the cellular tissue about the cæcum; the case was thus an example of perityphlitis.

2. They occur from tubercular disease of the intestine, and, as in the case of the typhoid abscess, the pus may be formed either in the cellular tissue or within the peritoneal cavity. In illustration of this may be mentioned a case which occurred when I was pathologist here. The patient had been under the care of Dr Bennett, and suffered from tubercle of the lungs and intestine. One of the intestinal ulcers, situated in the colon, an inch and a-half from the ileo-cæcal valve, had penetrated the wall of the gut by a small orifice about the size of a crow-quill leading into the cellular tissue. This abscess, after having existed for some time, burst into the peritoneal cavity, and produced a speedily fatal peritonitis.

3. More rarely, such accumulations are due to malignant disease. I recall the case of a man, whom also I saw only after death, and who had suffered from malignant disease of the cæcum, in the form of a large fungus mass. In connection with this disease, and probably from ulcerative perforation of its substance, perityphlitis occurred, and just such a tumour as you have studied in our patient existed for some time.

4. Abscesses also sometimes originate from the presence of

foreign bodies about the cæcum, or in the vermiform appendage. Some of you will remember the case of a boy who was one day last summer admitted into Ward VII. in a dying state. The death was due to peritonitis, which had arisen in connection with an abscess surrounding the vermiform appendage, and which had been originally shut in by adhesion. When Dr Wyllie, who was then acting as pathologist, examined the parts closely, he found a little bit of the woody fruit-stalk of an apple or pear, which, having passed into the vermiform appendage, induced ulceration, and produced the abscess.

5. Still more rarely, abscesses may result from the perforation of the small intestine or of the stomach. In the case of chronic perforating ulcer of the stomach, adhesions sometimes form, and perforations takes place into a shut sac, which becomes the seat of suppuration. In the duodenum, also, these chronic ulcers may lead to abscess. I once met with a remarkable case of abscess in the cellular tissue behind the peritoneum, extending from the level of the liver to the cæcum. It had originated in perforating ulcer of the posterior wall of the duodenum, and a finger could readily pass from the gut into the cavity of the abscess.

6. Abdominal abscesses occasionally result from hepatic suppuration. This is especially apt to be the case when the posterior part of the liver is involved, for perforation takes place into the cellular tissue more easily there than anywhere else. The pus in such a case may burrow downwards as far as the cæcum, or even further.

7. In connection with the kidney, abscesses are not unfrequent. Some of you may remember the case of an old woman who was under my care about eighteen months ago. She was admitted complaining of abdominal pain and swelling, which I found to be connected with an abscess in the cellular tissue round the right kidney. Unfortunately, taking fright at the idea of surgical interference, she insisted upon leaving the hospital. Three weeks later she returned with the swelling much increased, and her strength exhausted. As the case would not brook delay, I requested Mr Annandale to operate. He evacuated a considerable amount of very fœtid pus, but the patient sank within twenty-four hours. On *post-mortem* examination our diagnosis was confirmed, but the mode of origin of the abscess turned out to be specially interesting. The right ureter was completely obstructed by a calculus, impacted at its lower end; the upper part of the ureter and the pelvis of the kidney were dilated, and had evidently been the seat of hydronephrosis; but suppuration had set in, and involved the substance of the kidney, and secondary to this the perinephric abscess had been formed. The left kidney was natural, and had secreted healthy urine, which was never contaminated by pus, as the bladder and left

ureter were sound, and the right ureter was completely occluded. This corresponds pretty closely with what I saw ten years ago in the case of an old woman who was afflicted with cancer of the uterus. The disease had extended to the bladder, and had closed the orifice of the ureter. From this obstruction pyelitis resulted, suppurative nephritis followed, with widespread perinephric abscess as a further result.(*a*) About four years ago another example of this disease was under my care, in which suppuration appeared first to have affected the prostate, thence to have extended to the bladder, thence to the substance of the kidneys, and on one side to the surrounding cellular tissue. This diagnosis left, of course, no room for surgical interference, and the dissection subsequently confirmed the opinion which the history of the case and the facts observed had led us to form. In all these cases you will observe that the abscesses in the cellular tissue were associated with pyelitis, or with suppuration in the kidney itself; but this is by no means invariably the case, for sometimes suppuration arises in consequence of contusions,(*b*) or of wounds,(*c*) of violent exertion,(*d*) as a sequela of fever,(*e*) from impaction of stone in the pelvis of the kidney,(*f*) or from the presence of parasites.(*g*) I shall, however, have occasion to refer shortly to one well-marked case of perinephric abscess, where no such cause could be assigned.

8. Abdominal abscesses sometimes result from disease of bone. You must never forget this fact. I have seen a patient come a considerable distance to get advice regarding an abdominal tumour, which was really an abscess connected with caries of the vertebræ.

9. Such abscesses occasionally form in connection with the ovaries. We lately examined the body of a girl who suffered from an abscess in the pelvis connected with the uterus and ovaries, and probably originating from the latter. You remember that I, more than once, directed your attention to her case, and that our diagnosis was waxy degeneration of the stomach, intestine, liver, spleen, and kidneys. The grounds of the diagnosis were the vomiting, diarrhœa, enlargement of the liver, altered microscopic character of the blood, and albuminuria, the urine not being scanty, although the diarrhœa was so severe. The immediate cause of death was acute peritonitis, lighted up by a contiguous chronic abscess in the pelvis. Three years

(*a*) See a very similar case in Rayer's "Maladies des Reins," vol. iii. p. 268; and Atlas, plate xviii.

(*b*) *Edinburgh Medical and Surgical Journal*, vol. xv. p. 252. Also Trousseau's Clinical Medicine (Syd. Soc. trans.), vol. v. p. 338.

(*c*) Rayer, "Maladies des Reins," vol. iii. p. 251.

(*d*) Trousseau, p. 340.

(*e*) *Edinburgh Medical and Surgical Journal*, vol. xxvi. p. 106, quoted by Rayer.

(*f*) Rayer, vol. iii. p. 263.

(*g*) Rayer, vol. iii. p. 278.

previously she had been under treatment for pelvic pain in another ward in the house, and had left the hospital not improved. It appears probable that the abscess dated even from that time; at all events the waxy degeneration was widely diffused, and there was nothing else to account for it but chronic suppuration.

10. Abscesses are not uncommon in connection with the uterus. Sometimes they are in the cellular tissue—"parametric abscesses," a result of parametritis. Sometimes they occupy spaces in the peritoneal cavity—"perimetric abscesses," the result of perimetritis. It is to my colleague Dr Matthews Duncan that we owe much of our knowledge of these two diseases. You had last winter an opportunity of watching in Ward VIII. the case of a young woman who suffered from chronic parametritis. In that instance, happily, there has been no suppuration, but merely infiltration of the cellular tissue. On admission the patient complained of pain and swelling in the right iliac region. She had been confined four months before, and soon after had begun to suffer from the symptoms above mentioned. On inspection of the abdomen no swelling was visible, but on deep palpation a hard circumscribed mass was felt in the right iliac fossa. On vaginal examination, the uterus was found to be freely moveable, but on pressing the finger high up to the right side, the mass above referred to could be touched. Under the use of blisters suppuration was averted. Although the case did not go on to suppuration, it may, as it was under your own observation, serve as a reminder of this class of cases.

Having indicated these, the chief causes of abdominal abscess, we return to the question, To which of them are we to ascribe the lesion in the cases we are to-day especially considering? In that which I first described, and which still remains under observation, we had sufficient evidence that the abscess was truly perinephric in position, and had probably originated from a strain. The situation of the mass, its close connection with the kidney, the absence of any history pointing to uterine, intestinal, or other causal lesion, taken along with the patient's statement as to violent exertion, satisfied us of this.

In the second case the question of origin is more difficult to answer. Ulceration of the intestine, either typhoid, tubercular, or cancerous, could not be suspected, because there was no history of typhoid fever, nor any physical sign of tubercle of the lungs, while the age of the patient and the absence of an early history of intestinal obstruction, and of any bloody or black discharges with the motions, forbade the idea of malignant disease. The absence of a history of obstruction rendered the presence of a foreign body about the ileo-cæcal valve very unlikely; and even supposing that such a condition had existed to begin with, it certainly did not exist when the patient came under our charge.

As to the impaction of a foreign body in the vermiform appendage, the symptoms were less acute than I believe to be usual in connection with that accident. Perforations further up the alimentary tract could not be suspected, as there were no symptoms of disease of the stomach or small intestine. The suggestion of abscess of the liver as a possible cause was negatived by the absence of hepatic symptoms. Was the disease connected with the kidney? The urine being perfectly normal, and there having been no symptom of renal disease, it is pretty clear that the case could not be one of those connected with pyelitis or suppurative nephritis. In investigating such a case, you must keep in view the history of the case as well as the existing renal symptoms. I have told you already of the case of a woman whose suppurative nephritis and extensive pyelitis never showed themselves by abnormality of urine, the corresponding ureter being completely occluded, and only the secretion of the healthy kidney reaching the bladder. Remember, also, that the symptoms may be transient. There was, further, no history of wound, contusion, or violent strain, nor even of transient difficulty in micturition, and pain in the loins, which I have seen in one apparantly spontaneous case of perinephric abscess. This supposition, then, although more probable than any that we have as yet considered, cannot be regarded as proved,—all the more because there are certain facts strongly opposed to it. The position of the mass was too low and too much to the front, while there was none of the fulness and tenderness in the lumbar region which are usually found in perinephric abscess. The position of the abscess, its form, its extension upwards, the absence of any spinal curvature or tenderness, preclude the idea of abscess connected with vertebræ. The absence of all sign of ovarian enlargement, the history of the illness, and the position of the tumour, shut out the idea of ovarian origin. Was it connected with the uterus? There was certainly no thickening within the pelvis; the uterus was moveable, and apparently of normal size. Perimetritis was therefore, according to the rules laid down by authorities in gynecology, excluded. There thus remains only parametritis. In favour of it we have not only the evidence derived from the exclusion of the other causes, but certain positive facts of considerable value. The girl was healthy up to the time of her pregnancy, but thereafter was never well. She suffered pain in the region where the abscess existed from the time of her confinement till her admission to the wards. It might seem at first sight that the position of the tumour was opposed to that view, for while the tumour occupied the abdomen, we could not make out that it extended to the pelvis. But Dr Duncan and others have shown that parametric abscesses may extend as high as the kidney, and that they may be present there when all trace of inflammation has disappeared

from the pelvis.(*h*) The position, then, does not forbid the diagnosis. On the other hand, it is lower, more to the front, and less intimately connected with the kidney than is usual in perinephric abscess. We thus conclude that the case was one of parametritis.

Let us now briefly glance at the further history of cases of abdominal abscess. Some of them terminate in recovery, the abscess discharging externally and gradually drying up, or discharging by the vagina, by a ureter by the bronchi,(*i*) or, as in the case of Schönlein's patient, to whom I have already referred, by the bowel. I once examined the body of a woman who had evidently long before suffered from this disease, but had ultimately recovered with the loss of one kidney, of which traces were found in the midst of a dense mass of cicatricial tissue which occupied the renal region.

Abscesses prove fatal by perforation. I examined one case in which the diaphragm was penetrated, and fatal empyema resulted. Perforation into the stomach or intestine is often fatal, and so is opening into what generally prove more favourable channels, such as the vagina or the ureter. Peritonitis resulting either from perforation or from extension, is in my experience a not uncommon cause of speedy death.

Prolonged suppuration may be fatal by exhaustion or may induce waxy degeneration.

I have seen one or two cases in which inflammation of the portal vein resulted from suppuration, and proved fatal by inducing abscesses in the liver.

Many cases prove fatal from different forms of toxæmia, some with secondary abscesses, pyæmia, others with septicæmia. In connection with this, I may refer to a case which occurred in my wards about two years ago. A man was admitted suffering from symptoms of abdominal abscess in the neighbourhood of the left kidney. I deferred the operation for twenty-four hours, but in the course of the day he died. I was at first inclined to regret that we had not at once opened the abscess when we examined the case; but the result of the patient satisfied me that we had done better in leaving the case alone, for the spleen was pulpy and soft, the liver was congested, and the portal vein with its branches in the liver was full of pus. When the organ was cut through, and its substance squeezed, bloody purulent matter welled out from the cut surfaces.

Such, Gentlemen, is a catalogue of the chief dangers to which the victims of abdominal abscess are exposed. What *treatment* are we to adopt? When there is merely the condition which we have become accustomed to term "phlegmon"—that is, inflammation without suppuration—counter-irritants are our chief re-

(*h*) "Perimetritis and Parametritis," pp. 143 and 151.

(*i*) See a case given by Rayer, and two others quoted, vol. iii. p. 259 *et seq.*

liance, whilst pain must be relieved by appropriate remedies, and constipation carefully avoided. Let me again remind you of the example of this condition you witnessed during the present session, in which treatment by means of rest and blistering was followed by complete recovery. But whenever the presence of pus is ascertained, you must give it vent by aspiration or by free incision. The former is best for tentative purposes, as it involves no risk; the latter for cure. Those of you who saw the purulent material and the fibrous tissue removed from the abscess in the second case described to-day, would readily infer that the aspirator might have failed to get rid of the debris; and that consequently when it is used, re-accumulation is much more likely to occur than when incisions are made and the abscess is thoroughly emptied. But I would never venture to express this preference were it not for the antiseptic method. Aspiration is better than incision without antiseptics. Incision with antiseptics is better than aspiration. At the same time, you are of course aware that, before these methods were introduced, it was customary to open by free incision such abdominal abscesses as were not supposed to be due to disease of bone. As an illustration of this, I may mention the first case of the disease that occurred in my practice, that of a man who was admitted to the Infirmary nine years ago, suffering from a large accumulation of pus round the kidney. The diagnosis having been established, I asked Dr Gillespie to operate. This he did by making a free and deep incision in the lumbar region. A large quantity of pus was at once evacuated, a drainage tube was introduced, and although it continued to discharge pus freely for some weeks, it ultimately healed, and several years afterwards the patient was in excellent health, working regularly as a cabman. This is an example of the good result that often followed the older method of operation, but I must ask you to believe that greater safety is attained by the newer method. Considerable experience of medical abscess has satisfied me of the great value of the antiseptic treatment, and I should never feel warranted in allowing any patient of mine to have a deep abscess opened freely without its careful application.